

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Jon C. SOPER, et al. Docket No.: GIV.P30054
Serial No: 10/555,727 Examiner: Jyoti CHAWLA
Filed: November 7, 2005 Group Art Unit: 1794
Title: Alginate Matrix Particles

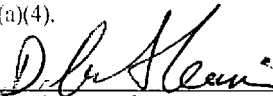
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March 22, 2010

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APPELLANTS' BRIEF UNDER 37 C.F.R. § 41.37

To the Honorable Commissioner For Patents:

This is an appeal to the Board of Patent Appeals and Interferences (the "Board") from the final rejection set forth in the Office Action mailed November 12, 2009.

In accordance with 37 C.F.R. §41.31, Appellants electronically filed the Notice of Appeal via EFS-Web on January 20, 2010.

The present appeal is of pending claims 1-20.

37 CFR §1.7 provides “[W]hen the last day, or the last day fixed by statute or by or under this part for taking any action, or paying any fee, in the Patent and Trademark Office falls on Saturday, Sunday or on a Federal holiday within the District of Columbia, the action may be taken, or the fee paid, on the next succeeding day which is not a Saturday, Sunday, or Federal holiday.”

The Notice of Appeal was filed on January 20, 2010 and set a two months or sixty (60) days shortened statutory period for response (whichever is longer). The longer period for response ended on March 21, 2010. Today, March 22, 2010, is the next succeeding day that is not a Saturday, Sunday or Federal holiday within the District of Columbia. Accordingly, this Appeal Brief is timely.

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1. Real Party in Interest

The owner of the present patent application is Givaudan SA by virtue of an assignment from the Appellants.

Givaudan SA is a Société anonyme organized under the laws of the country of Switzerland.

The assignment for the present patent application was recorded in the records of the Assignment Division of the United States Patent and Trademark Office (the "Office" or "USPTO") on March 27, 2006 at Reel/Frame 017370/0068.

2. Related Appeals and Interferences

In accordance with 37 C.F.R. §41.37(c)(1)(ii), Appellants hereby inform the Board that there are no other prior pending appeals, interferences, or judicial proceedings known to Appellants, Appellants' legal representative, or assignee which may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

3. Status of Claims

The present patent application was filed on November 7, 2005 with original claims 1-11. The application is a national stage patent application of International Application No. PCT/CH2004/000270 filed May 5, 2004.

In a preliminary amendment filed on November 7, 2005, Appellants added claims 12-20.

Claims 1-20 are currently under final rejection and constitute the claims on appeal.

In accordance with 37 C.F.R. §41.37(viii), appealed claims 1-20 appear in the attached Appendix.

4. Status of Amendments

A Final Office Action was mailed by the Office on November 12, 2009.

No amendments to pending claims 1-20 have been filed with the Office subsequent to the mailing date of the Final Office Action.

5. Summary of Claimed Subject Matter

Independent claim 1 is directed to matrix particles comprising a discontinuous phase of a plurality of inclusions of oil, wherein the oil is optionally flavor oil or fragrance oil, the oil dispersed within a matrix, the matrix comprising a crosslinked polymer and at least one filler. See Specification at Page 1, Lines 3-5; Page 3, Lines 3-5; Page 3, Lines 8-11; Page 7, Lines 11-14; Page 9, Lines 17-19. Dependent claim 2 is directed to the matrix particles as described in the previous sentence, comprising a cross-linked polymer derived from the group consisting of alginate and pectin, derivatives thereof or combinations thereof. See Specification at Page 7, Lines 1-9; Page 11, Lines 5-11. Dependent claim 3 is directed to the matrix particles as described in the first sentence of this paragraph, wherein the cross-linked polymer is alginate. See Specification at Page 13, Lines 16-22; Page 16, Lines 5, and 20-22; Page 16, Lines 25-26. Dependent claim 4 is directed to the matrix particles as described in the first sentence of this paragraph, comprising a filler selected from the group consisting of inorganic substances, organic substances, and combinations of any or all of the aforementioned substances. See Specification at Page 3, Lines 24-29. Dependent claim 5 is directed to the matrix particles as described in the first sentence of this paragraph, comprising a filler, in a ratio of 2:1 to 1:2, to the polymer. See Specification at Page 4, Lines 4-7. Dependent claim 6 is directed to the matrix particles as described in the first sentence of this paragraph, comprising microcrystalline cellulose as a filler. See Specification at Page 3, Lines 22-29; Page 4, Lines 4, and 7-8. Dependent claim 7 is directed to the matrix particles as described in the first sentence of this paragraph, wherein the discontinuous phase comprises oil and the particles comprise surface oil below 10% (wt/wt). See Specification at Page 9, Lines 22-24. Dependent claim 8 is directed to the matrix particles as described in the first sentence of this paragraph, comprising at least one coating. See Specification at Page 13, Lines 16-22. Dependent claim 9 is directed to the matrix particles as described in the first sentence of this paragraph, comprising colouring matter. See Specification at Page 9, Line 26 through Page 10, Lines 1-2.

Dependent claim 10 is directed to products comprising matrix particles as described in the first sentence of the previous paragraph. See Specification at Page 11, Lines 13-25; Page 11, Line 27 through Page 12, Line 17; Page 12, Line 19 through Page 13, Line 5; Page 20, Lines 13-14.

Dependent claim 11 is directed to a process for preparing matrix particles as described in the first sentence of the first paragraph, comprising (a) forming an emulsion comprising a polymer, a filler, and oil; (b) forming matrix particles comprising a continuous phase containing a hydrophilic polymer and a filler and further comprising a discontinuous phase containing oil; (c) hardening said matrix particles by cross-linking the polymer; and (d) drying the cross-linked matrix particles. See Specification at Page 3, Lines 13-14; Page 13, Lines 7-22.

Dependent claim 12 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the filler comprises cellulose polymers or derivatives thereof. See Specification at Page 3, Line 22 through Page 4, Line 2. Dependent claim 13 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the filler comprises at least one of carbonates, silicates, sulphates, or phosphates. See Specification at Page 3, Line 22 through Page 4, Line 2. Dependent claim 14 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the filler comprises at least one of magnesium carbonate, calcium carbonate, calcium phosphate, calcium sulphate, magnesium silicate, aluminium silicate, ground limestone, clay, talc, or titanium dioxide. See Specification at Page 3, Line 22 through Page 4, Line 2. Dependent claim 15 is directed to the matrix particles as described in the first sentence of the first paragraph, comprising a filler, in a ratio of 1.5:1 to 1:1.5, to the polymer. See Specification at Page 4, Lines 4-8. Dependent claim 16 is directed to the matrix particles as described in the first sentence of the first paragraph, comprising a filler in a ratio of about 1:1 to the polymer. See Specification at Page 4, Lines 4-8.

Dependent claim 17 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the discontinuous phase comprises oil and the particles comprise surface oil below 5% (wt/wt). See Specification at Page 9, Lines 21-24. Dependent claim 18 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the discontinuous phase comprises oil and the particles comprise surface oil below 3% (wt/wt). See Specification at Page 9, Lines 21-24. Dependent claim 19 is directed to the matrix particles as described in the first sentence of the first paragraph, wherein the discontinuous phase comprises oil and the particles comprise surface oil below 1% (wt/wt). See Specification at Page 9, Lines 21-24.

Dependent claim 20 is directed to the matrix particles as described in the first sentence of the first paragraph, comprising at least one of an active, a stabiliser, or an excipient. See Specification at Page 1, Lines 3-9; Page 5, Lines 14-18; Page 8, Lines 10-28; Page 9, Lines 1-15; Page 14, Line 7; Page 15, Lines 17-18; Page 20, Line 28 through Page 21, Line 4; Page 27, Lines 3-4.

6. Grounds of Objection to be Reviewed on Appeal

The grounds for objection to be reviewed in the present appeal are:

Objection of Claim 9

The objection of claim 9 as unacceptable U.S. spelling of “colouring matter”.

7. Grounds of Rejection to be Reviewed on Appeal

The grounds for rejection to be reviewed in the present appeal are:

A. Rejection Under 35 U.S.C. § 102(b) of Claims 1-5, 8, 10-12, 15-16 and 20

The rejection of claims 1-5, 8, 10-12, 15-16 and 20 under 35 U.S.C. § 102(b) as being anticipated by US 5,266,335 to Cherukuri, et al.

B. Obviousness

1. Rejection Under 35 U.S.C. § 103(a) of Claims 7, 13-14 and 17-19

The rejection of claims 7, 13-14 and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over US 5,266,335 to Cherukuri, et al.

2. Rejection Under 35 U.S.C. § 103(a) of Claim 6

The rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over US 5,266,335 to Cherukuri, et al. in view of US 5,912,030 to Huzinec, et al.

3. Rejection Under 35 U.S.C. § 103(a) of Claim 9

The rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over US 5,266,335 to Cherukuri, et al. in view of US 4,515,769 to Merritt, et al.

8. Argument

A. Claim Objections

Regarding Appellants' Response B, the Office has alleged that Claim 9 has been objected to because the spelling of "colouring matter" is not an acceptable United States spelling. Applicants respectfully submit that this allegation is contrary to the clear directions of the Manual of Patent Examining Procedure (MPEP).

Examiners should not object to the specification and/or claims in patent applications merely because applicants are using British English spellings (e.g., colour) rather than American English spellings. See MPEP §608.01. It is not necessary to replace the British English spellings with the equivalent American English spellings in the U.S. patent applications. Id. Note that 37 CFR 1.52(b)(1)(ii) only requires the application to be in the English language.

The Final Office Action has entirely disregarded Appellants' previous arguments and the regulations promulgated by the USPTO. The MPEP, which is published by the USPTO for use by patent examiners in the examination of U.S. patent applications, specifically provides that the specification and/or claims should not be objected to merely because applicants are using British English spellings rather than American English spellings. The MPEP clearly states at §608.01 that it is not necessary to replace the British English spellings with the equivalent American English spellings in the U.S. patent applications. Moreover, the MPEP uses the word "colour" as an example to emphasize this point. Accordingly, Appellants respectfully request withdrawal of the objection to claim 9.

B. Rejection Under 35 U.S.C. § 102(b) of Claims 1-5, 8, 10-12, 15-16 and 20

Claims 1-5, 8, 10-12, 15-16, and 20 have been rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,266,335 to Cherukuri et al.

CLAIM 1

Regarding claim 1, it is alleged in the Final Office Action at Pages 2 and 4 that Cherukuri et al. teach matrix particles comprising a discontinuous phase of a plurality of inclusions of oil, wherein the oil is optionally flavor oil or fragrance oil, the oil is dispersed with in a matrix, the matrix comprising a cross-linked polymer and at least one filler (e.g., gum arabic). Appellants respectfully traverse this rejection.

“A finding of anticipation requires that the publication describe all of the elements of the claims, arranged as in the patented device.” *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1349 48 USPQ2d 1225, 1230 (Fed. Cir. 1998). In addition, MPEP § 2131 states that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).” MPEP at 2100-67.

Cherukuri et al. disclose spheroidal microcapsules containing oil and resin. (See Abstract, Column 2, lines 57-65). The disclosure in Cherukuri et al. demonstrates that the capsules differ significantly from Applicants’ claimed subject matter. Cherukuri et al. specifically provide for “microencapsulated flavoring agents in the form of spheroidal microcapsules which comprise a core of peppermint oil and the glycerol ester of partially hydrogenated wood rosin (i.e., a type of resin) ...” (See Column 3, lines 11-14).

Contrary to the assertion in Office Action dated November 12, 2009 (“first Office Action”), Cherukuri et al. do not disclose matrix particles containing a plurality of inclusions of oil (i.e., akin to the multitude of seed casings contained with the outer covering of the pomegranate fruit) as is presently claimed. (See Examiner’s Response to Arguments at Page 4, Section (i)). Nowhere do Cherukuri et al. state that the “[m]atrix particles [comprise] ... a discontinuous phase of a plurality

of inclusions of oil” as asserted in the Office Action. *Id.* Cherukuri et al. rather disclose capsules that contain merely one oil core surrounded by a wall (i.e., a “coating layer”) – that is, a plurality of oils in the single oil core. (See Abstract, Column 3, lines 11-16). Cherukuri et al. fail to disclose a plurality of inclusions of oil within a microcapsule. In fact, at the citation referenced in the Final Office Action, Cherukuri et al. disclose the following:

The flavoring agents which may be used include those flavors known to the skilled artisan, such as natural and artificial flavors. These flavorings may be chosen from synthetic flavor oils and flavoring aromatics and/or oils, oleoresins and extracts derived from plants, leaves, flowers, fruits, and so forth, and combinations thereof.

(See Column 4, lines 16-21). Unlike Cherukuri et al., a “matrix particle” as used in Appellants’ application, refers to “a particle comprising as a continuous phase and as a matrix material a polymer and in a discontinuous phase an oil dispersed within the matrix, e.g. a multitude of oil droplets.” (See Specification, Page 3, Lines 16-18). Similarly, Figure 1 discloses a plurality of microcapsules – not a plurality of *inclusions* within a microcapsule. Appellants’ disclosed “matrix particles” are “generally formed from oil-in-water emulsions, wherein the matrix-forming polymer is water-soluble and forms the continuous phase, and the oil forms the discontinuous phase.” (See Specification, Page 1, Lines 16-20). Accordingly, Cherukuri et al. neither disclose nor suggest the alleged teaching of matrix particles containing a plurality of inclusions of oil at the citation and Figure listed. (See Examiner’s Response to Arguments at Page 4, Section (i)).

It is respectfully submitted that Cherukuri et al. do not disclose matrix particles comprising a discontinuous phase of a plurality of inclusions of oil, wherein the oil is optionally flavor oil or fragrance oil, the oil dispersed within a matrix, the matrix comprising a cross-linked polymer and at least one filler as recited in claim 1. Accordingly, Cherukuri et al. do not teach or disclose the subject matter of claim 1 and claims 2-20 depending therefrom.

CLAIM 4

Regarding claim 4, it is alleged in the Final Office Action at page 4, Section (ii) that based on the general examples in [the] ... disclosure a gum, cellulose polymer or microcrystalline cellulose or derivative thereof constitutes filler [and] ...Cherukuri teaches of ... fillers as claimed.” (See Examiner’s Response to Arguments at Pages 4-5, Section (ii)). Appellants respectfully submit that this assertion is contrary to the disclosure of Cherukuri et al. and the definition of a filler provided in Appellants’ specification.

Unlike Cherukuri et al., Applicants’ Claim 1, which is incorporated into Claim 4, recites that the matrix comprises “at least one filler.” The Detailed Description of Cherukuri et al. specifically provides that the capsule simply “comprises (A) a core ... and (B) a coating layer over the core which comprises in percentages by weight of the coating layer ... gum arabic in an amount from about 45% to about 49% ...” (See Column 3, lines 20-35). Cherukuri et al. fail to mention, let alone disclose, the utilization of filler in the coating material. What is being alleged as the filler, is in actually the matrix material itself of Cherukuri et al.

The present application discloses that “fillers that are inert, essentially **insoluble** and essentially do not swell, and are capable of forming a dispersion of solid particles in water. (See Specification, page 4, lines 26-29, and claims 1, 6, and 11-16) (emphasis added). Based upon the description of “filler” corresponding to an insoluble substance as provided in Applicants’ specification, gum arabic as disclosed in Cherukuri et al. cannot be considered to be a filler as presently claimed, because gum arabic is extremely soluble in water. Therefore, the disclosure of gum arabic in Cherukuri et al. does not teach Appellants’ recitation of the presence of a filler.

Furthermore, the Office Action alleges that Cherukuri et al. “teaches of gum, carboxymethyl cellulose (a derivative of microcrystalline cellulose) and polymers, i.e., fillers as claimed.” (See Examiner’s Response to Arguments at Page 5, Section (ii)). However, Cherukuri et al. actually refer to “colloidal material” when referencing gum, carboxymethyl cellulose and polymers. (Column 6, lines 27-32). “Colloidal” pertains to a substance made up of

a system of particles dispersed in a continuous gaseous, liquid or solid medium whose properties depend on the large specific surface area. (See *Hawley's Condensed Chemical Dictionary*, 2007, 15th edition, p. 321). A "colloidal solution" is defined as a "system intermediate between a true solution and a suspension." (*Id.*) On the other hand, a filler is defined as "an inert mineral powder of rather high specific gravity used in plastic products and rubber mix to provide a certain degree of stiffness and hardness and to decrease cost." (*Id.* at p. 563). For this reason, the gum, carboxymethyl cellulose and polymers disclosed in Cherukuri et al. are simply not classified as fillers for polymer material, such as the claimed matrix crosslinked polymer. Accordingly, Cherukuri et al. fail to teach fillers as claimed.

The difference between the resins disclosed in Cherukuri et al. and the fillers as claimed by Applicants should be noted. Specifically, the resins disclosed in Cherukuri et al. are added to the oil and not to the polymer matrix as in Applicant's claims. (See Abstract, Column 3, lines 11-16). For this reason, the list of Cherukuri et al. resins and the fillers that are claimed by Applicants do not overlap (i.e., the cited resins are soluble in water and the claimed fillers are not).

In the Final Office Action, it was specifically alleged that Appellants' argument that "the resins disclosed in Cherukuri et al. are added to the oil and not to the polymer matrix" (Remarks, page 8, paragraph 2, line 3) is not persuasive because "the features upon which applicant relies (i.e., resins not added to the polymer matrix) are not recited in the rejected claim(s)." (See Page 7, section (vi) of the Office Action). It appears as though the Office is requesting Appellants put a negative limitation in the claims because the language "resins not added to the polymer matrix" does not appear in the claims. However, the claims positively recite that the matrix comprises a crosslinked polymer. The negative that is argued is with respect to the prior art not adding resin to the matrix. No negative claim limitation is appropriate. Appellants submit that the language in the claims as written is clear in terms of what comprises the matrix and what comprises the discontinuous phase and its distinction from Cherukuri et al. A resin added to an oil core as in Cherukuri et al. does not teach or suggest a matrix particle comprising a crosslinked polymer matrix that holds discontinuous inclusions of oil.

CLAIM 11

With respect to claim 11, it is alleged that Cherukuri et al. “teaches of encapsulated flavor matrix as recited in claim 1 and as recited in claim 11. (See first Office Action at Page 3, Paragraph 5). Appellants respectfully traverse.

Cherukuri et al. fail to disclose a process for preparing matrix particles, comprising the steps of “hardening said matrix particles by cross-linking the polymer” or “drying the cross-linked matrix particles” as claimed. As Cherukuri et al. fail to suggest, let alone disclose, the aforementioned steps in their application, claim 11 cannot be anticipated by Cherukuri et al.

CLAIM 20

Regarding claim 20, it is alleged that Cherukuri et al. “teaches of matrix particles comprising flavor oils and combinations thereof and gums and colloids, i.e., carriers, coating agents (column 4, lines 16-68, Column 6, lines 27-35), i.e., at least one of an active ingredient. Cherukuri also teaches of addition of emulsifiers or stabilizers to the flavor oil comprising matrix (Column 5, line 58 to Column 6, line 5), as claimed.” (See first Office Action at Page 4, Paragraph 4, incorporated in the Final Office Action). Appellants respectfully traverse this rejection.

The difference between the emulsifiers or stabilizers disclosed in Cherukuri et al. and the stabilizers as claimed by Applicants should be noted. Specifically, the emulsifiers or stabilizers disclosed in Cherukuri et al. are “added to the resin melt to form a core emulsion” and not to the polymer matrix as in Applicant’s claims. (See Abstract, Column 3, lines 11-16). For this reason, the stabilizers that are claimed by Applicants do not overlap with the Cherukuri et al. disclosure. Furthermore, claim 20 includes the elements of claim 1, and the presence of a stabilizer does not cure the lack of disclosure of the crosslinked-polymer matrix or the lack of a plurality of oil inclusions in the disclosure of Cherukuri et al.

Appellants submit that the record supports a finding by the Board that the Office Action allegations fail to support the rejection that claims 1-5, 8, 10-12, 15-16, and 20 are anticipated under 35 U.S.C. § 102(b).

It is respectfully requested that the 35 U.S.C. § 102(b) rejection of claims 1-5, 8, 10-12, 15-16, and 20 be reversed.

C. Rejection Under 35 U.S.C. § 103(a) of Claims 7, 13-14 and 17-19

Claims 7, 13-14, and 17-19 have been rejected under 35 U.S.C. §103(a) as obvious over Cherukuri et al. Appellants respectfully traverse this rejection.

CLAIMS 13-14

With respect to claims 13-14, it is alleged in the Final Office Action at pages 5-6 that Cherukuri et al. teach "bulking agents such as mineral adjuvants which may serve as fillers and textural agents." To establish a *prima facie case* of obviousness under 35 U.S.C. §103(a) there must be (1) a suggestion or motivation to modify a reference, (2) a reasonable expectation of success, and (3) the modification of the reference must teach or suggest all claimed limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991). The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), provided the following in pertinent part:

When it first established the requirement of demonstrating a teaching, suggestion, or motivation to combine known elements in order to show that the combination is obvious, the Court of Customs and Patent Appeals captured a helpful insight. See *Application of Bergel*, 48 C.C.P.A. 1102, 292 F.2d 955, 956-957 (1961). As is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances

rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.

KSR International Co. v. Teleflex Inc., 550 U.S. 398, 82 USPQ2d 1385 (2007).

The Supreme Court in *KSR* stated that “the Court of Appeals has since elaborated a broader conception of the TSM [teaching-suggestion-motivation] test.” See, e.g., *DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1367 (2006) (“Our suggestion test is in actuality quite flexible and not only permits, but *requires*, consideration of common knowledge and common sense”); *Alza Corp. v. Mylan Labs., Inc.*, 464 F.3d 1286, 1291 (2006) (“There is flexibility in our obviousness jurisprudence because a motivation may be found *implicitly* in the prior art. We do not have a rigid test that requires an actual teaching to combine ...”). Because the Office Action fails to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), the rejection under 35 U.S.C. §103(a) should be reversed.

Cherukuri et al. do not disclose, suggest, or provide motivation for bulking agents such as mineral adjuvants which may serve as fillers and textural agents for the matrix. Cherukuri et al. simply teach that the amount of inventive encapsulated flavoring agent employed in an edible composition is dependant upon the type of bulking agent or carrier utilized in the edible composition, rather than in the encapsulated flavoring agent. (See Column 7, lines 58-62). Therefore, Cherukuri et al. do not teach matrix particles as claimed by Appellants or even suggest that a filler should be added to the wall of such a particle.

CLAIMS 7, and 17-19

Regarding claims 7, and 17-19, it is alleged that one of ordinary skill would have been motivated to modify Cherukuri et al. and disclose the amount of surface oil at least for the purpose of quantifying the level of excess oil contained in the matrix. (See first Office Action at Page 6, Paragraph 3, incorporated into the Final Office Action). The Office Action alleges that one would have been further motivated to quantify the amount of surface oil in an encapsulated matrix at the time of preparation and several times during storage to determine the storage stability of the matrix comprising the flavor oil. (See first Office Action at Page 6, Paragraph 3 through Page 7, Paragraph 1). Applicants respectfully traverse this rejection.

Cherukuri et al. fail to provide any reference to "surface oil" whatsoever. However, the Office Action contends Appellants' aforementioned argument that "Cherukuri fails to provide any reference to "surface oil" whatsoever" is not persuasive. (See Page 5, section (iii) of the Final Office Action). Although Cherukuri et al. disclose that the size of the pores in the walls of the capsules may be controlled by the rate of the gelling process, such that encapsulated oil will not escape through the capsule walls, Appellants previously demonstrated that there is no explanation as to the location (i.e., surface of the particles) where one would attempt to quantify the potential lack of any oil released from the capsules.

Cherukuri et al. do not disclose a discontinuous phase of oil, but only a single oil core. Surface oil in Cherukuri et al. would therefore indicate a complete failure of the particle, and the percentage on the surface would be irrelevant. Accordingly, no motivation exists to measure percentage of surface oil as presently claimed, where there are a plurality of oil inclusions that individually could contribute to the presence of surface oil while still maintaining substantial integrity of the particle.

Additionally, the first Office Action at Page 6, Paragraph 3 (incorporated into the Final Office Action) alleges that "Cherukuri also teaches that after the particles are made, water and anticaking agent are added and the microcapsules are washed 4 times, filtered and then dried (Column 21, lines 1-8). Thus, Cherukuri teaches of making the microcapsules as recited in claim 1 and in a manner such that no oil escapes and the surface oil is removed with the help of water and anticaking agent, i.e., no surface oil." This allegation is pure speculation, and is only based on a reading of Appellants' specification.

Nowhere do Cherukuri et al. state microcapsules as containing "no or low surface oil" as claimed. On the other hand, Appellants clearly address the issue of "surface oil" by describing it as "the weight percent of the sample that is oil which may be extracted from the sample by a simple solvent wash of the sample in a reagent that is non-intrusive to the sample matrix particles. The encapsulated oil is the oil effectively within the sample which is not extractable by mixing with solvent and filtration." (See Specification at Page 2, Lines 5-8). Moreover, Appellants illustrate that

“[t]he surface oil may be extracted using a non-polar solvent, such as tetrachloroethylene.” (See Specification at Page 2, Lines 8-9). Conversely, Cherukuri et al. do not disclose either prevention or extraction of *any* surface oil whatsoever. One of skill in the art would not reasonably expect to achieve the same results in extracting oil with water as one would with a non-polar solvent, such as tetrachloroethylene. Consequently, there is simply no disclosure, suggestion, or motivation in Cherukuri et al. that teach making the capsules as recited in claim 7 in a manner that results in surface oil below 10 % (wt/wt).

Cherukuri et al. fail to teach or suggest a matrix having a crosslinked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1, incorporated in claims 7, 13-14 and 17-19. The Office Allegations regarding claims 7, 13-14 and 17-19 do not correct this deficiency. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” MPEP § 2143.03 at page 2100-142.) Thus, Applicants respectfully request that the 35 U.S.C. §103 rejection of claims 7, 13-14 and 17-19 over Cherukuri et al. be reversed.

D. Rejection Under 35 U.S.C. § 103(a) of Claim 6

Claim 6 has been rejected under 35 U.S.C. §103(a) as obvious over Cherukuri et al. in view of United States Patent No. 5,912,030 to Huzinec et al. Appellants respectfully traverse this rejection.

Regarding claim 6, the first Office Action at Page 7 (incorporated into the Final Office Action) alleges that Cherukuri et al. disclose the claimed matrix particles, except that Cherukuri et al. are silent as to the matrix particles comprising microcrystalline cellulose (MCC) as filler. However, it is also alleged that Huzinec et al. teach microcrystalline carrier material, including MCC which can be mixed with additives, such as flavors, flavor enhancers, flavor masking additives, sweeteners, sweetener enhancers, vitamins, pharmaceuticals, minerals, colors, acids, and mixtures thereof. (See first Office Action at Page 7, Paragraph 5). The Office alleges

Cherukuri et al. teach the invention as claimed in independent claim 1 and Huzinec et al. are being relied upon to show that it was known to use microcrystalline cellulose (Column 2, lines 15-19). (See Page 6, section (iv) of the Final Office Action).

The first Office Action explicitly concedes that Cherukuri et al. do not disclose or suggest matrix particles comprising microcrystalline cellulose (MCC) as claimed in the present application. Moreover, as discussed above, Cherukuri et al. do not provide any suggestion or motivation to utilize a filler in the particles whatsoever. Therefore, Cherukuri et al. do not provide any suggestion or motivation to utilize MCC as filler, even when considered in view of Huzinec et al..

Because the product of Cherukuri et al. does not disclose the claimed features of matrix particles comprising a filler in the matrix (wall), the presently claimed product is not substantially the same as the product of Cherukuri et al. Furthermore, the combination of Cherukuri et al. with Huzinec et al. does not arrive at the presently claimed subject matter of an encapsulated flavoring agent, because this combination of references does not show all of the claimed features of claim 6, as discussed above with regard to claim 1. If Huzinec et al. mix MCC with the additive, *ie* the discontinuous oil inclusions in the present case, then it would not be suggested to add MCC to the matrix particle crosslinked polymer continuous phase.

Evidence showing there was no reasonable expectation of success may support a conclusion of nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). Whether an art is predictable or whether the proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made. *Ex parte Erlich*, 3 USPQ2d 1011 (Bd. Pat. App. & Inter. 1986).

For the combination of Cherukuri et al. and Huzinec et al. to have been obvious at the time of the invention, a person of ordinary skill in the art would have needed some reason upon which to base an expectation of success. A reasonable expectation does not exist in this case. Huzinec et al. is directed to utilization of cellulose as a delivery system. (See Column 2, lines 8-19). Huzinec et al. clearly discloses that a “beneficial property of the carrier is the ability to

incorporate into the carrier, by absorption and/or adsorption. the additives [e.g., flavors] and segregate them from one another, thereby allowing additive/carrier blends containing more than one additive to release each additive at the same or at different times.” (See Column 2, lines 8-12).

Huzinec et al. fail to teach or suggest a matrix having a crosslinked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1, incorporated in claim 6. Once more, Huzinec et al. do not teach matrix particles as disclosed by Applicants or even suggest that a filler, such as MCC, could or should be added to the wall of such a particle. Therefore, there is no reasonable basis upon which the cited art would lead one to focus on these compounds and suggest the manner in which to modify them in order to obtain the claimed matrix particles.

Additionally, Huzinec et al. teach away from the present claims. Huzinec et al. teach that “[e]ncapsulation of additives such as flavors and sweeteners is time-consuming and expensive.” (See Column 1, lines 37-38). Accordingly, Huzinec et al. actually teach away from the presently claimed matrix particles. The Supreme Court in *KSR*, in discussing *United States v. Adams*, 383 U.S. 39 (1966), stated: “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be non-obvious.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007).

Post-*KSR* cases support the longstanding proposition that a prior art “teaching away” from the claimed invention will support a finding of non-obviousness. For instance, in *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350 (Fed. Cir. 2007), decided after *KSR*, the Federal Circuit rejected an “obvious to try” argument. Alphapharm argued that it was obvious to select “compound b” and modify it to arrive at the claimed invention. Takeda demonstrated that compound b was one of hundreds of millions of compounds disclosed in the art and that references taught away from its use.

For the aforementioned reasons, there can have been no reasonable expectation of success in combining the encapsulation teachings of Cherukuri et al. with the teaching against the use of encapsulation by Huzinec et al. at the time the invention was made, such that the combination of Cherukuri et al. and Huzinec et al. cannot properly support an obviousness rejection. One of ordinary skill in the art would not have combined these two references, with contrary teachings, in order to arrive at the claimed matrix particles. Therefore, Appellants respectfully request that the obviousness rejection as applied to claim 6 be reversed.

E. Rejection Under 35 U.S.C. § 103(a) of Claim 9

Claim 9 has been rejected under 35 U.S.C. 103(a) as being obvious over Cherukuri et al. in view of United States Patent No. 4,515,769 to Merritt et al. Appellants respectfully traverse this rejection.

With respect to claim 9, it is alleged that Cherukuri et al. teach the claimed matrix particles comprising flavor oil, a cross-linked polymer, and at least one filler for adding to foods and pharmaceuticals, except that Cherukuri et al. are silent as to the matrix particles comprising coloring matter. However, the first Office Action on page 8, incorporated into the Final Office Action, specifically alleges that Merritt et al. teach encapsulated flavorant material comprising coloring material, and therefore contends it would have been obvious to one of ordinary skill to modify Cherukuri et al. in view of Merritt et al. and add color to the encapsulated flavor.

The Final Office Action alleges that encapsulated particles comprising coloring matter were known at the time of the invention, and therefore, it would have been obvious to modify Cherukuri et al. in view of Merritt et al. and add coloring matter to the encapsulated flavor particle. (See Page 7, section (v)).

The first Office Action, incorporated into the Final Office Action, cited column 3, lines 20-35, column 4, lines 16-21, column 6, lines 64-65, and column 8, lines 39-47 of Cherukuri et al. and column 11, lines 17-20 of Merritt et al. Merritt et al. fail to teach or suggest that

technology relating to encapsulated flavorant compositions comprising coloring material can be applied to the continuous phase (wall) of matrix particles. Furthermore, Merritt et al. teach that “[w]hen such a coloring material is to be incorporated, it should be incorporated into the cores of the material, not into the water insoluble coating, since unless the coloring material is sealed by the water insoluble coating, the coloring material will tend to leach out into the composition in which the encapsulated flavorant material is placed, thus producing unattractive smears of color within the material.” (See Column 11, lines 25-32) (emphasis added). Therefore, no motivation exists to combine Cherukuri et al. with Merritt et al. to make an encapsulated flavor particle as presently claimed, but in fact Merritt et al. expressly teach against the claimed subject matter of claim 9. Accordingly, Merritt et al. do not teach matrix particles as claimed by Appellants or even suggest that a coloring material should be added to the wall of such a particle.

The deficiencies of Cherukuri et al. have been discussed in detail above. Merritt et al., taken alone or in combination with Cherukuri et al., fail to teach or suggest a matrix having a crosslinked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1, incorporated in claim 9. Merritt et al. do not teach matrix particles as disclosed by Applicants or even suggest that a coloring material could or should be added to the wall of such a particle. Therefore, there is no reasonable basis upon which the cited art would lead one to focus on these compounds and suggest the manner in which to modify them in order to obtain the claimed matrix particles.

MPEP § 2142 states that

[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.*, . . . 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that “rejections on obviousness cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also *KSR*, 550 U.S. at 398, 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). . . . A decision to make or maintain a rejection in the face of all the evidence must show that it was

based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943 . . . (Fed. Cir. 1990).

MPEP at 2100-127-2100-128.

For the reasons set forth above, Appellants respectfully submit that the Office has not met its burden of proving a prima facie case of obviousness by not considering the totality of the evidence. Cherukuri et al. and Merritt et al. taken together, fail to teach or suggest all the elements of claim 9.

Merritt et al., whether taken alone or in combination with Cherukuri et al., fail to teach or suggest a matrix having a crosslinked polymer wall and a plurality of discontinuous inclusions of oil in the matrix as claimed in claim 1, incorporated in claim 9. The Office Allegations regarding claim 9 do not correct this deficiency. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). (“If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.” MPEP § 2143.03 at page 2100-142.) Therefore, Applicants respectfully request that the 35 U.S.C. §103 rejection of claim 9 over Merritt et al. be reversed.

Conclusion

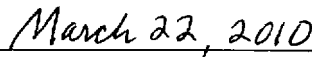
Appellants submit that the remarks presented hereinabove traverse all the existing claim objections and the rejections under 35 U.S.C. §§ 102 and 103 of all pending claims. Appellants respectfully request the Board to reverse the objection to and rejection of claims 1-20. Appellants further respectfully request the Board to reverse the Final Office Action in this case and to require an indication of the allowability of the claims 1-20 over the art of record.

Respectfully submitted,



Joseph G. Curatolo, Esq. (Reg. No. 28.837)
D. Ari Sherwin, Esq. (Reg. No. 63.843)
Curatolo Sidoti Co., LPA
24500 Center Ridge Road, Suite 280
Cleveland, Ohio 44145
Telephone: 440.808.0011
Facsimile: 440.808.0657
Attorneys for Appellants

Customer No. 23575



Date

9. Claims Appendix

In accordance with 37 C.F.R. §41.37 (c)(1)(ix), the claims on appeal are as follows:

1. (Previously Presented) Matrix particles comprising a discontinuous phase of a plurality of inclusions of oil, wherein the oil is optionally flavor oil or fragrance oil, the oil dispersed within a matrix, the matrix comprising a crosslinked polymer and at least one filler.
2. (Original) Matrix particles according to claim 1 comprising a cross-linked polymer derived from the group consisting of alginate and pectin, derivatives thereof or combinations thereof.
3. (Original) Matrix particles according to claim 1 wherein the cross-linked polymer is alginate.
4. (Previously Presented) Matrix particles according to claim 1 comprising a filler selected from the group consisting of inorganic substances, organic substances, and combinations of any or all of the aforementioned substances.
5. (Previously Presented) Matrix particles according to claim 1 comprising a filler, in a ratio of 2:1 to 1:2, to the polymer.
6. (Previously Presented) Matrix particles according to claim 1 comprising microcrystalline cellulose as a filler.

7. (Previously Presented) Matrix particles according to claim 1 wherein the discontinuous phase comprises oil and the particles comprise surface oil below 10% (wt/wt).
8. (Previously Presented) Matrix particles according to claim 1 comprising at least one coating.
9. (Previously Presented) Matrix particles according to claim 1 comprising colouring matter.
10. (Previously Presented) Products comprising matrix particles according to claim 1.
11. (Previously Presented) Process for preparing matrix particles as described in claim 1, comprising
 - i) forming an emulsion comprising a polymer, a filler, and oil,
 - ii) forming matrix particles comprising a continuous phase containing a hydrophilic polymer and a filler and further comprising a discontinuous phase containing oil
 - iii) hardening said matrix particles by cross-linking the polymer
 - iv) drying the cross-linked matrix particles.
12. (Previously Presented) Matrix particles according to claim 1 wherein the filler comprises cellulose polymers or derivatives thereof.
13. (Previously Presented) Matrix particles according to claim 1 wherein the filler comprises at least one of carbonates, silicates, sulphates, or phosphates.

14. (Previously Presented) Matrix particles according to claim 1 wherein the filler comprises at least one of magnesium carbonate, calcium carbonate, calcium phosphate, calcium sulphate, magnesium silicate, aluminium silicate, ground limestone, clay, talc, or titanium dioxide.
15. (Previously Presented) Matrix particles according to claim 1 comprising a filler, in a ratio of 1.5:1 to 1:1.5, to the polymer.
16. (Previously Presented) Matrix particles according to claim 1 comprising a filler in a ratio of about 1:1 to the polymer.
17. (Previously Presented) Matrix particles according to claim 1 wherein the discontinuous phase comprises oil and the particles comprise surface oil below 5% (wt/wt).
18. (Previously Presented) Matrix particles according to claim 1 wherein the discontinuous phase comprises oil and the particles comprise surface oil below 3% (wt/wt).
19. (Previously Presented) Matrix particles according to claim 1 wherein the discontinuous phase comprises oil and the particles comprise surface oil below 1% (wt/wt).
20. (Previously Presented) Matrix particles according to claim 1 comprising at least one of an active, a stabiliser, or an excipient.

10. Evidence Appendix

None

11. Related Proceedings Appendix

None